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REMARKS/ARGUMENTS

In view of the following remarks, the applicants respectfully submit that the pending claims are not anticipated under 35 U.S.C. § 102. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 102

Claims 1, 2, 4, 6, 9 and 10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0012714 ("the Kawai publication"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claim 1 is not anticipated by the Kawai publication because the Kawai Publication does not teach a photographing device provided with a dust removing mechanism comprising a control circuit which changes a frequency of a periodic drive signal to a plurality of frequencies close to two or more resonance frequencies different in order from each other, to thereby cause an optical element to be vibrated at the plurality of

frequencies in turn. Similarly, independent claim 4 is not anticipated by the Kawai publication because the Kawai Publication does not teach a control circuit that first outputs a control signal for causing an optical element to undergo a low-order resonance vibration and then a control signal for causing the optical element to undergo a high-order resonance vibration. Similarly, independent claim 9 is not anticipated by the Kawai publication because the Kawai Publication does not teach a control circuit which causes an optical element to generate standing-wave vibration, and controls a frequency of a periodic drive signal to cause nodes of the standing-wave vibration to be successively shifted.

In the photographing device of the present application which is provided with the dust removing mechanism, the optical element is provided between the photographing optical system and the photoelectric conversion element in such a way as to seal the photoelectric conversion element. (See Figure 1 of the present application.) Furthermore, at a peripheral portion of the optical element, a piezoelectric element is provided, and the optical element is resonantly vibrated by vibration of the piezoelectric element, thereby removing dust adhering to the surface of the optical element. In this case, frequencies close to **two or more resonance frequencies** which are different in order are **successively applied**, and the optical element is vibrated at the successively applied frequencies. For example, it is subjected to a low-order resonance vibration, and then to a high-order resonance vibration. Doing so more effectively removes dust than if the optical element is vibrated at a single resonance

frequency. (See Figures 6-11 and pages 30-33 of the present application.)

The Examiner argues that the Kawai publication (US 2004/0012714A) discloses features of the present invention. The applicants respectfully disagree.

First, the Kawai publication teaches three distinct embodiments. The first embodiment is explained in paragraphs [0025] to [0041] with reference to FIGS. 1-5. This embodiment relates to a technique in which a piezoelectric body 171 is provided on a glass plate 17 as shown in FIG. 2A, and alternating voltages having the same phase are applied to the piezoelectric body 171 and the glass plate 17, thereby generating such a first-order standing-wave vibration as shown in FIGS. 3B, 3C and 5A to 5I at the surface of the glass plate 17.

The second embodiment is explained in paragraphs [0042] to [0045] with reference to FIGS. 6 and 7. This embodiment relates to a technique in which two pairs of piezoelectric bodies (i.e., a pair of piezoelectric bodies 271 and 272 and a pair of piezoelectric bodies 273 and 274), as shown in FIG. 6, are provided on a glass plate 27 such that the piezoelectric bodies of each pair are displaced from each other by $\lambda/4$ in the horizontal direction, and are vibrated, generating a progressive wave (traveling wave) on the surface of the glass plate 27.

The third embodiment is explained in paragraphs [0046] to [0048] with reference to FIG. 8. This embodiment relates to a dust removing mechanism in which piezoelectric bodies 371 and 372 are provided on a glass plate 37 as shown in FIG. 8. The vibration pattern in

the third embodiment is the same as that in the first embodiment.

As is clear from the above, part of the Kawai publication relating to the first to third embodiments does not disclose that frequencies close to two or more resonance frequencies which are different in order are successively applied, and an optical element for removal of dust is vibrated at the successively applied frequencies. Nor does the Kawai publication disclose a concept of changing the vibration frequency with the passage of time.

Regarding independent claims 1 and 4, the Examiner contends that paragraphs [0036], [0037], [0042], [0043], [0045] and [0048] of the Kawai publication, disclose "a control circuit which changes a frequency of the periodic drive signal to a plurality of frequencies close to two or more resonance frequencies different in order from each other, to thereby cause the optical element to be vibrated at the plurality of frequencies in turn." (Paper No. 20080203, pages 2 and 3.) The applicants respectfully disagree.

Paragraph [0036] of the Kawai publication merely explains the vibration pattern at the time of subjecting the optical element to a first-order vibration with reference to FIGS. 5A to 5I, and paragraph [0037] merely explains an equation of a resonance frequency at the time of generating a first-order vibration.

Furthermore, paragraph [0042] of the Kawai publication explains a structure for causing the optical element to generate a traveling wave with reference to FIG. 6, paragraph [0043] explains that a vibration wave travels over the surface of the optical element with the

passage of time with reference to FIG. 7, and paragraph [0045] explains how dust is removed due to the progressive wave. It contains a description to the effect that the frequency of the progressive wave is made to be three times greater than that of the standing wave in the first embodiment (its wavelength is one third of that in the first embodiment). This is simply intended to **compare** the frequency of the standing wave in the first embodiment with that of the traveling wave in the second embodiment. That is, it does not teach (nor does it suggest) that **the frequency of the traveling wave is successively changed to different ones.**

Paragraph [0048] of the Kawai publication merely explains a modification of the first embodiment and that of the second embodiment; that is, it does not disclose that the order of the standing wave is successively changed to different ones.

As is clear from the above, the control circuits recited in claims 1 and 4 are not disclosed in any of paragraphs [[0036], [0037], [0042], [0043], [0045] and [0048] of the Kawai publication. Consequently, claims 1 and 4 are not anticipated by the Kawai publication for at least the foregoing reasons. Since claims 2 and 6 depend from claims 1 and 4, respectively, they are similarly not anticipated.

Regarding independent claim 9, the Examiner contends that paragraph [0048] and FIG. 7 of the Kawai publication disclose "a control circuit which causes the optical element to generate standing-wave vibration, and controls frequency of the periodic drive signal to cause nodes of the standing-wave vibration to be successively shifted".

(Paper No. 20080203, page 3.) The applicants respectfully disagree.

Paragraph [0048] of the Kawai publication merely explains a modification of the first embodiment and that of the second embodiment, and contains no description concerning "control circuit" as recited in claim 9. In particular, FIG. 7 of the Kawai publication schematically shows how a traveling wave generating at the surface of the glass plate travels (how a wave generated at the surface of the glass plate changes with the passage of time), and does not teach (or suggest) that **nodes of the standing-wave vibration are successively shifted in position and number**. Furthermore, FIG. 7 does not disclose the variation of the frequency of the traveling wave (variation of the order).

As is clear from the above, the control circuit of claim 9 is not disclosed in paragraph [0048] and FIG. 7 of the Kawai publication. Accordingly, independent claim 9 is not anticipated by the Kawai publication for at least the foregoing reason. Since claim 10 depends from independent claim 9, it is similarly not anticipated by the Kawai publication.

Conclusion

In view of the foregoing remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

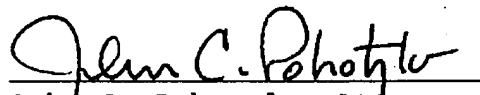
Any arguments made in this request for reconsideration pertain **only** to the specific aspects of the invention **claimed**. Any arguments are made **without**

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prejudice to, or disclaimer of, the applicants' right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Respectfully submitted,

May 6, 2008

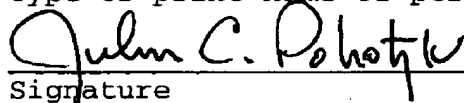

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